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AUTHOR Hoffman, Martin L.
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ABSTRACT

The psychoanalytic theory of identification and the cognitive-developmental and social-learning theories of imitation are briefly described. Pertinent empirical research in the following areas is summarized and critically evaluated: imitation in infants, observational learning, clinical use of modeling, and the relation of imitation to aggression, prosocial behavior, and self control. Among the author's general conclusions: (1) there is very little pertinent research on identification, but it appears that identification is not an all-encompassing unitary process; (2) the child's general cognitive level has an impact on what he or she can learn by observing models; (3) children are active cognitive processors of the model's words and actions; (4) Piaget's work with infants is the closest approach to date of a stage analysis of imitation; (5) young children may acquire, from brief periods of observation, certain motoric and verbal behaviors that appear to be associated with aggression in real-life situations; (6) the results of research on the long-term effects of television violence are equivocal; (7) experimental studies of observational learning of sharing behavior indicate that models do increase prosocial behavior in children; however, (8) prosocial behavior does not seem to be enhanced by watching television programs with prosocial content; (9) exposure to models who yield to the temptation to perform a prohibited act, and are not punished, has a disinhibiting effect on children; the effects of exposure to models who resist temptation, however, is less clear due to demand characteristics of laboratory research. (Author/SS)

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IDENTIFICATION AND IMITATION IN CHILDREN

Martin L. Hoffman

University of Michigan

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Identification and Imitation in Children

Martin L. Hoffman

University of Michigan

In this review I shall attempt to cover the major theories of identification and imitation, and to summarize and critically evaluate the pertinent empirical research.

Identification

Many students of human development have assumed, since Freud, that parent identification is a central, all-encompassing process in personality development. As noted by Bronfenbrenner (1960)

> Freud was not asking why and how a child might learn an isolated piece of behavior from his parent. He was interested in what he felt to be a more sweeping and powerful phenomenon--the tendency of the child to take on not merely discrete elements of the parental model, but a total pattern. Moreover, as Freud saw it, this acquisition was accomplished with an emotional intensity which reflected the operation of motivational forces of considerable power.

The question that has intrigued most writers on identification is, just what is the nature of the motive that impels the child to emulate the parent model. The psychoanalytic tradition has stressed two basic motives: the first is the child's anxiety over losing the parent's love. To get rid of this anxiety and assure himself of the parent's continued love, the child strives desperately to be like the parent in every way--to adopt, for example, the parent's behavioral mannerisms, thoughts, feelings, and even the capacity to punish himself and experience guilt when he violates a moral standrad. This process--sometimes called anaclitic identification--is viewed as contributing to lasting developmental changes in the child.

These include the changes associated with acquisition of an appropriate sex-role identity. It is also often assumed that by adopting the parent's evaluative orientation with respect to the parent's own behavior, the child eventually stops striving only for impulse gratification and, since the parent's orientation derives from his cultural group, the child internalizes the standards of the culture; identification thus contributes to an internalized conscious. In some re-formulations, in which the stress is more on the child's love for the parent model than on the threat of loss of love, the terms used are developmental identification, or emotional identification.

The second basic motive, which is derived from Freud's notion of castration anxiety, is fear of physical attack or punishment by the parent. Toward the end of the preschool period, as part of the Oedipus conflict, the boy comes to see his father as a potential source of punishment for his erotic feelings toward his mother (the process is fully worked out only for boys). The resulting "identification with the aggressor" or "defensive identification" is currently seen by most writers as making a possible contribution to aggressive behavior but not to positive socialization, or it is seen as being nothing more than a transitory defense mechanism.

Theorists of other, nonpsychoanalytic persuasions have suggested that the child tries to emulate the parent not to avoid anxiety but as a means of acquiring certain highly desirable characteristics of the parent such as (a) the priveleges and satisfactions that he has (e.g., the love received from the other parent), (b) his effective mastery over the environment which enables him to control resources and satisfy his own needs, and (c) his power and control over the child. A self-reinforcing

process is often postulated by these writers: the child fantasizes himself as the model who controls and consumes the valued resources that the child lacks. The child then acts like the model and the resulting similarity that he perceives between himself and the model is reinforcing because it signifies that he may attain the model's desired goal states.

Despite the assumed importance of identification, there is a lack of systematic empirical research on its antecedents and consequences. Scattered support does exist, however, for the view that identification is fostered both by parental affection toward the child and, at least in boys, by parental power and dominance (e.g., Hetherington, 1965). There is also evidence that identification may contribute to the child's acquisition of (a) culturally approved sex-typed preferences and behaviors (e.g., Mischel, 1970) and (b) certain aspects of morality that are reflected in the parent's words and deeds, such as moral reasoning and helping others (Hoffman, 1971, 1975). On the other hand, there appears to be a lack of consistency among the presumed products of identification; for example, children who obtain high scores on indices of appropriate sex-role identity do not necessarily obtain high scores on indices of moral conduct (Mischel, 1970). This suggests that identification is not an all-encompassing unitary process. The research also suggests that identification may bear little or no relationship to an important index of the presence of a conscience: experiencing guilt feelings over violating moral standards (Hoffman, 1971). This may reflect the fact that parents do not often express guilt feelings openly and thus do not provide the child with a model of self-criticism and guilt; it may also be due to the child's lack of both the experience and the cognitive skills needed to infer inner states from overt behavior.

In conclusion, the parent is obviously an ever-present, emotionally significant figure in the young child's life, as well as the major model of social norms to which he is exposed. Some sort of identificatory process with regard to the parent may therefore be expected to operate and play an important role in the child's socialization. The research thus far, though sparse, appears to provide some, slight support for this expectation with regard to overt behaviors, verbalized preferences, and attitudes. Further research is needed, however, before a more definitive statement can be made about the importance of identification in the development of guilt feelings and perhaps other inner states associated with socialization.

Theories of Imitation

Psychologists and sociologists around the turn of the century attributed imitation to instinctual origins because of its pervasiveness in different cultures, (e.g., James, 1890; Tarde, 1923). In general, instinct theory assumed that imitation occurred without conscious intentions; it was rather an involuntary, reflexive type of action that few people could resist when exposed to social stimuli. Instinct explanations of imitation behaviors fell into disrepute in the 1920s and 1930s, with the rise of behaviorism and the increasing evidence that most of human social behavior was learned. In 1941 Miller and Dollard advanced a learning theory of matched imitative behavior and conducted a series of experiments to support the theory. Little was done after that until the 1960s when Bandura and his students began to develop a comprehensive social learning theory of imitation and to conduct dozens of studies which seemed to follow from it. Cognitive developmentalists have begun to theorize about imitation only recently,

although Piaget did have something to say about the topic much earlier.

Social Learning Theory of Imitation

Social learning theorists have criticized the psychoanlytic conception of identification for lacking precision, not lending itself to empirical study, and focusing exclusively on early childhood and the importance of one model, the parent. These writers, notably Bandura (1969a), view identification as a continuous process through life in which new responses are acquired and behavioral repertoires modified owing to exposure to, and imitation of not only the parent but a wide variety of models whose attitudes, values, and social responses are exemplified behaviorally or in verbally coded forms. Bandura's primary contribution has not been to elucidate the child's motives for emulating the model but in providing a perspective on the cognitive processes involved in imitation which had been neglected in previous formulations. These processes follow logically from an anlysis of what must occur in the observer to enable him to reproduce a model's complex behavior later on in the model's absence. They include (1) attending to the particular aspects of the model's behavior to be emulated; (2) coding these aspects of the model's behavior into symbols that can be stored; (3) retention, which is aided by proper visual and especially verbal coding and sometimes by rehearsal; and (4) eventually recoding the stored information and (5) using the resulting codes as a guide for enacting the behavior in an appropriate situation in the model's absence.

Steps 1 and 2 constitute what Bandura calls the acquisition or learning phase of imitation. Influential in this phase are the properties of the model

which signify the extent to which the observer is likely to be reinforced for imitating the model (e.g., the model's age, power, competence, status, and gender). The greater the expected probability of reinforcement, the more likely the observer is to attend to the model and code the relevant information. Steps 1 and 2 are also influenced by the properties of the observer (e.g., the observer's level of dependency and self-esteem, his conceptual level, and especially the extent to which he has been reinforced in the past for imitative behavior). Step 5 pertains to the performance of an imitative response. Whether or not the observer performs the act acquired from the model depends on what he expects the consequences of such action to be as well as his competence (i.e., his possession of the skills needed to perform the act). The reinforcement for imitation may be direct or vicarious; and self-reinforcement is also possible. To illustrate the distinction between acquisition and performance, in one study it was found that when children watched a model being punished for a particular behavior they subsequently showed very little of that behavior in a free-play situation. When offered inducements to reproduce these behaviors, however, the children performed them with remarkable fidelity. The behavior was acquired but not performed in the first case, and performed in the second. Thus, although Bandura does not deal with motivation directly, it is the anticipation of the reinforcement consequences of imitating a model that leads a person to decide what should be coded, retained, and later possibly recoded and enacted. As a social learning theorist, however, Bandura's view is that the key factor in determining what, if any, reinforcement the observer expects, and thus whether or not he performs, is his past reinforcement history.

Cognitive Developmental Theory of Imitation

The cognitive-developmental approach, deriving from Piaget (1962) and exemplified in the recent literature by Kuhn (1973), differs from social-learning theory in several ways. First, it assumes that imitation, like other mental activities, involves an active cognitive processing of the stimuli emanating from the model. Thus the observer does not simply attend to the model and passively code the model's behavior as a guide to later action. Rather, the observer's existing cognitive structure (categories of thought) determines his very perception of what the model does. Similarly, the retention, and eventual enactment of the model's behavior in the model's absence are viewed as manifestations of the observer's cognitive structure and functioning. Second, the type of imitation that the individual is capable of, and the aspect of the model's behavior that he can imitate, depend on his cognitive capabilities. There are, therefore, levels or developmental stages in imitation, as in other cognitive processes. For example, Piaget stresses the fact that the young infant can only imitate the model's ongoing behavior. The ability to delay an overt imtative response until some time long after the initial observation, when the model is no longer present, is a later development. It implies the ability to form an internal representation of the model, as well as to maintain that representation in memory over time and to use it as a guide to action. Third, the anticipation of external reinforcement is not a requisite for acquisition or performance of the model's behavior. Rather, the same type of intrinsic motivation that characterizes other cognitive actions (the need to make sense of one's environment) underlies imitation as well.

Review of the Research

Before reviewing the research it may be useful to point up certain conceptual distinctions, most but not all of which are implicit in the foregoing. First there is the distinction between imitation of a model's ongoing action and delayed imitation which occurs in the model's absence. A second distinction is that between true, spontaneous imitation and what Piaget calls "pseudo imitation" or "imitation by training." In the latter case an infant, for example, may be rewarded (e.g., hugged or spoken to) every time he acts in a certain way; and once that act is learned the infant can, by the use of contingent reinforcement, be taught to act that way only after the model first acts that way (like teaching a dog to "shake hands").

The distinction must also be made between imitation in which the response is novel, and that in which the response is already within the observer's repertoire. The former is often called "observation learning" and the latter, "facilitation" or "contagion." Imitation may also contribute to the inhibition of an act which would otherwise be expressed or to the disinhibition of an act which is in the observer's repertoire but ordinarily not expressed.

A final distinction worth making rests on the nature of the motive underlying the imitation. Most of the research has dealt with imitation based on two broad classes of motives. In one, which relates to competence or problem solving, the observer imitates the model in order to acquire knowledge or learn skills. In the other, the observer imitates the model because of the quality of the emotional relationship (e.g., the attachment) that may exist between him and the model . The observer imitates the model because he wants to be like the model. Imitation based on the

quality of the relationship is the type which is closest to identification.

Imitation in Infants

There is as yet no systematic research on imitation in children younger than two years of age. Piaget's (1962) observations of his own child are the most detailed descriptive evidence available. Piaget views the developmental changes in imitation as paralleling his postulated stages of intellectual development. I will present several of the significant transition points in infant imitation.

The first evidence of imitation appears to involve direct prompting by adults. It has been widely observed that a young infant can be induced to imitate if another person mimics certain actions of the infant. For example, saying "dada" immediately after the infant said it typically results in the infant's blurting out a string of "dadas". Piaget found that an infant responds to such prompted imitation by the age of 1 to 4 months and he termed this phenomenon a "circular reaction". Another development in the infant's skill in imitating, which occurs, according to Piaget, when the infant is approximately 4 or 5 months of age, is the ability to emulate the actions of another person that are unrelated to his own momentary behavior. The imitated actions, however, are already in the infant's repertoire and contingent external reinforcement is ordinarily required to connect these actions to the model's behavior. Furthermore, the only acts that can be imitated are those which give the infant a visual impression matching the model's act (e.g., he can imitate closing a fist, but not blinking an eye). Next, Piaget observed that by about 1 year of age his children began imitating movements which cannot be seen on one's own body and acts that are not already known to the child. He observed a considerable amount of trial and error as the children

attempted to imitate unfamiliar responses. By 16 months of age, Piaget's children were able spontaneously to imitate novel actions without any trial and error groping. He also observed that the children could imitate after long delays in time even when the model was not present. These findings indicated to Piaget that covert or mental images had now replaced overt imitation as a requisite for learning. These images, thought of as covert imitative responses, could later be recalled to guide overt imitation. Their appearance marks the beginning of what may be called representational imitation.

Piaget did not observe changes in imitation in his children beyond the age of two years. It is assumed that representational imitation, which is at first undirected, casual, and probably controlled by the environment, continues to develop further and by around seven years of age has become a rather self-conscious, reasoned strategy for acquiring knowledge and solving problems.

Once past infancy our interest shifts from the exact copying or mimicry of a model, to other more complex behaviors that may result from exposure to models. These include cognitive learning, inhibition and disinhibition of aggression and other deviant acts, acquisition of prosocial behaviors, and finally, the utilization of models in clinical settings.

Imitation and Cognition: Observation Learning

Social learning, as well as cognitive-developmental theorists now agree that the child is not a passive observer but, rather, an active cognitive processor of the model's words and actions. Indeed social-learning theorists have taken the lead in the relatively recent attempts to demonstrate

that complex cognitive learning can take place when the child is exposed to a model. Literally dozens of experimental studies have been done attempting to show the effectiveness of modeling procedures in teaching a variety of language rules, abstract concepts or principles, problem-solving strategies, and creative processes. To demonstrate such cognitive learning requires evidence of generalization and transfer to novel, unfamiliar tasks and settings. Zimmerman and Rosenthal (1974) have reviewed this extensive body of reserach. Unfortunately their review appears to be biased in the direction of social learning theory. That is, they tend to exaggerate the complexity of what the child learns through observing models in the various experiments, as well as the difference between the initial task and setting in which the observation of the model occurs and the later task and setting presumed to show generalization and transfer effects. When we examine the experiments carefully it is clear that the rules acquired are usually quite simple and the initial and posttest tasks and settings are similar (e.g., a different room or a female rather that a male experimenter may be used; and though the test item content may differ the form of the item remains the same). Furthermore, many of the studies are not pertinent to our concerns because the subjects were not only exposed to a model but were also given direct instructions, feedback on their performance and, in some instances, they were actually told what the rule guiding the model's behavior was.

Nevertheless, some of the studies are worth mentioning because they do show that children can learn not only to mimic specific acts but to abstract rules by watching another person demonstrate a simple conceptual strategy on a variety of tasks. Thus Rosenthal and Carroll (1972) exposed seventh graders to a model who wrote and orally repeated elaborate sentences

using the past perfect tense. Afterwards, there were significant increases in both complex sentences and pluperfect verbs, forms that rarely occurred before exposure to the models. Harris and Hessemer (1972) also found evidence of model-induced changes in language complexity with mono- and bilingual children. In this study the child was told to make up sentences about pictures while taking turns with a model on alternative pictures. The model's sentences varied in length and linguistic complexity. Changes in these same grammatical structures were noted in the child's subsequent speech patterns.

There is also evidence that a child's strategies for gathering information may be affected by exposure to models (Denny, 1975; Lamal, 1971; Laughlin, Moss & Miller, 1969). These studies were devoted to teaching question-asking strategies on a variant of the "twenty-questions" game using modeling procedures. Pictures were presented and the child was instructed to ask any question that can be answered by "yes" or "no" and to try to guess the correct picture with the fewest number of attempts. The superior strategy -- consistently used by children above the age of ten years -- is to ask "constraint-seeking" questions that is, questions which eliminate more than one picture. Eight- and nine-year olds learned the constraint-seeking strategy just by watching a model ask this type of question. Six-year olds, however, did not completely learn and comprehend this strategy unless the model mentioned the rule he used to formulate questions, visually removed the pictures that were eliminated by each question from the array, and described how he was going to use the information derived from the answer to each question. This procedure apparently made the logical implications of the model's superior questioning strategy more evident to the younger children, who were otherwise unable to abstract the rule.

Several studies have been conducted that found a child's conceptual tempo to be influenced by a model's performance (Debus, 1970; Ridberg, Parke & Hetherington, 1971). Impulsive observers became more reflective (made fewer erros and increased the time used for decision making) after watching a reflective model perform. Reflective children became more impulsive after viewing an impulsive model perform. And finally, Zimmerman and Dialessi (1973) found that children who were exposed to a model who rapidly produced ideas, thought of significantly more ideas on another task than children who were exposed to a more lethargic model. Whether these were truly creative responses is problematic.

An interesting series of experiments beginning with the investigation of Bandura and McDonald (1963) and continuing into the present have been conducted to test Piaget's assumption that the child's progression from one moral stage to the next requires cognitive disequilibrium. The attempt in these studies was to see if the individual's level of moral reasoning could be changed by simply exposing him to models who verbalize moral judgments at higher or lower levels than his own. The social learning theorists who did most of this work expected that such exposure would produce changes, whereas cognitive-developmentalists would not ordinarily expect social influences to operate in such a direct manner. In general, these experiments did show that the subjects' moral judgments were affected by the model's verbalizations. The earlier experiments were criticized as perhaps demonstrating nothing more than momentary, specific response shifts rather than actual changes in level of moral reasoning (Turiel, 1966). The more recent research, however, does indicate that children not only shift their verbal responses in the direction preferred by the model but also increase their understanding of the principle

that intentions should be taken into account when making moral evaluations of behavior. Furthermore, the effects appear to last up to a year, although not beyond that (Cowan, Langer, Heavenrich, & Nathanson, 1969; Crowley, 1968; Dorr & Fay, 1974; Glassco, Milgram & Youniss, 1970; Sternlieb & Youniss, 1975).

That mere exposure to models can produce such shifts has been interpreted as evidence against cognitive developmental theory. Another interpretation is that the children did not merely imitate the model. Rather, they knew beforehand that acts may or may not be intentional but gave intentions less weight than consequences, perhaps because the stories used, like Piaget's, portrayed more harmful consequences for accidental than for intended acts. This fits the recent evidence (Imamoglu, 1975; Rule, Nesdale, & McAra, 1974) that children as young as 5 years of age use intentions when the consequences of accidental and intended acts are equal (the modeling studies in question used older children). Repeated exposure to an adult model who consistently assigns greater weight to intentions despite the disparity in consequences might then have produced cognitive disequilibrium, or dissonance which the subjects reduced by reexamining and changing their views. This interpretation, which is consonant with cognitive developmental theory, suggests that children may sometimes be provoked to re-think their own views as the result of being exposed to a model who expresses a contrary view.

All of the research just described serves to highlight the difference between the social learning and cognitive-developmental perspectives. Generally, the social learning theorists try to show that the child's cognitive structure can be altered by observing models, whereas the cognitive-developmental

position is that the child's cognitive level determines the type of imitation of which he is capable. It seems clear from the findings that children can abstract simple rules by observing models, although it is questionable whether true changes in cognitive structure have yet been demonstrated in children who did nothing more than observe models. It also seems apparent that children cannot imitate a model whose actions or words are beyond their own cognitive level. As noted earlier, for example, six-year olds were unable to acquire the constraint-seeking strategy, while eight- and nine-year olds were able to do so. For an extensive review of the research on age differences in imitation, see Yando, Seitz, and Zigler (In press). That review documents the impact of age in general but, except for Piaget's observations and analysis of the changes in imitation during infancy, discussed earlier, the data do not as yet lend themselves to a stage theory of the qualitative shifts in type of imitation that occur with age or the motivation underlying the child's imitative responses.

Imitation and Aggression

The vast body of research on imitation and aggression in children has been stimulated, of course, by public interest in the possible effect on children of violence in the mass media. Many efforts have been made to determine whether children will learn aggressive acts, or whether their aggressive tendencies which are normally under control will be reduced as a result of exposure to real or symbolic aggressive models (e.g., in cartoons, movies, stories, and simulated television programs). As is widely known, several laboratory experiments do support the view that children may acquire, from even a very brief period of observation, certain motoric and verbal behaviors which are associated with aggression in real-life situations (e.g., Bandura, Ross & Ross, 1961, 1963a, 1963b). In these studies subjects were

exposed to live or filmed aggression scenes, then placed in a free-play situation with a variety of toys or other play materials. The results indicate that the exposure of young children to aggressive models produces increments in such play activities as punching inflated plastic clowns, popping balloons, striking stuffed animals, and operating mechanized "hitting dolls."

According to social-learning theorists, whether a model is rewarded or punished for his action should influence the degree to which the action is imitated. Applied to aggression, this means that a child who observes a model punished for aggression should show inhibitory tendencies. Following this approach, Bandura, Ross and Ross (1963b) exposed nusery-school children to films that depict an adult model employing considerable physical and verbal aggression against another adult in order to amass his possessions. Under a model-rewarded condition the aggressor successfully appropriated these possessions and rewarded himself for doing so; under a model-punished condition the aggressor received severe punishment for his behavior. Two control conditions were included: one in which the children observed the models engage in vigorous but nonaggressive play, and another in which there was no model. In a subsequent free-play situation the children who observed the model punished exhibited significantly less aggression than children who saw him rewarded. They did not show less aggression, however, than the children in either of the control groups.

Three film sequences were utilized by Bandura (1965) in a further study of the influence of consequences to the model on children's aggressive behavior. The major portion of each sequence depicted an adult behaving in an aggressive manner toward an inflated rubber doll. In one sequence the adult was punished for his aggression. In another he was rewarded, and in the third there were no consequences. As in the earlier study, children who saw the model punished for aggression showed less aggressive behavior in a subsesequent

test situation than children who saw the model rewarded. They also showed less aggression than children in the no-consequence condition. The same amount of aggression was displayed by children in the model-rewarded and no-consequence conditions.

Putting the two sets of findings together, the following pattern emerges: the model-punished condition produced less aggression than either the model-rewarded or no-consequence condition but no less than the no-model (and also the active nonaggressive model condition); the no-consequence condition produced the same amount of aggression as the model-rewarded condition. Clearly, the consequences to an aggresssive model have an influence on the subject's aggression. Whether this signifies an inhibitory effect for the model-punished condition or a disinhibitory effect for the model-rewarded condition, however, depends on whether the no-consequence or no-model condition is chosen for purposes of comparison. I think that neither is ideal but the no-model condition is the more appropriate control, for the following reasons.

First, the fact that the no-consequence and model-rewarded conditions produced the same amount of aggression suggests they were psychologically equivalent and equally rewarding. That is, both films were taken up largely by the model engaged in highly vigorous aggressive behavior against a Bobo doll. The only difference was that in the model-rewarded film another adult praised the model and gave him candy and soft drinks. The model's engaging in freely agressive action without punishment could well have been the salient aspect of both films. Furthermore, the fact that the aggressive model was an adult may have provided an added element of legitimization of aggression in the two conditions, thus tending to equalize them further. If the no-consequence condition is equivalent to the model-rewarded condition, it is inappropriate to use it as the control.

Second, any ceiling-effect explanation, which might argue against using the no-model condition as the control, is doubtful since the aggression scores

in the no-model condition were as high as the active-nonaggressive-model condition and high enough for an effective inhibitory agent to have a marked effect; yet the model-punished group tended to show slightly (though not significantly) more rather than less aggression.

My interpretation of the findings, then, is that the low level of aggression in the no-model condition was primarily the result of the child's past socialization experiences. Witnessing a model behave aggressively appears to have a disinhibiting effect, which is sustained if the model is rewarded or merely goes unpunished. (The weakening of inhibitions against aggression by exposure to models has also been demonstrated in several other studies including those of Bandura and Huston, 1961 and Bandura, Ross and Ross, 1963a). Punishment to the model has the effect of neutralizing the disinhibition and reducing the aggression to the baseline level—but not below.

The research suggests, then, that exposure to aggressive models who are punished may not increase the child's tendency to inhibite the expression of aggression, although it may neutralize the aggression-arousing effects of watching the model behave aggressively in the first place. The same line of reasoning may also explain why Rosekrans and Hartup's (1967) preschool subjects who observed models punished for aggression showed less aggression than children who observed a rewarded model but were no less aggressive than children who observed *no* model. It may also explain the finding by Collins (1973) that children at three age levels (grades 3, 6 and 10) who observed television-like films in which a man commits a crime and is apprehended and punished, displayed the same amount of aggression afterwards as children who observed no model.

Effect of Television Violence on Children

The above research has limited relevance to the question of whether the exposure to televised aggression will increase the child's willingness to engage in behavior that might actually harm another person, since the behaviors

studied did not involve interpersonal harm. This limitation was partially overcome in a study by Hanratty, O'neal and Sulzer, (1972). Children who had observed a model attack a nonreactive adult dressed as a clown like the Bobo doll were subsequently found to be more likely to assault the live Bob. As noted by Kaplan and Singer (1976), however, the presence of an adult dressed as a Bobo may not have activated the ordinary social sanctions against aggression and may even have invited a playful "aggressive" response by signaling to the child that the adult would not retaliate against him. Clowns in circuses are often hit with no retaliatory consequences as a sort of fun aggression.

In another study, Liebert and Baron (1972) employed a different and seemingly more valid measure of interpersonal aggression. This study was also perhaps the first to investigate the influence of the type of television violence generally depicted on regularly broadcast television shows. Boys and girls of two age groups (5-6 and 8-9 years) first viewed 3 1/2 minute excerpts from actual television programs depicting either aggressive (the "Untouchables") or nonaggressive (an active sequence involving hurdling, high jump, etc.) scenes, and were then provided an opportunity to aggress against a peer. The opportunity to aggress was as follows: the subject was told that there was another child in the next room about to play a game in which he had to turn a handle. The subject could help that child turn the handle by pushing the green button on the box in front of him; or he could make the handle so hot that the child would have to let it go, by pushing the red button. Furthermore, the green button was marked HELP and the red button was marked HURT. Though indirect, this seems to be a fairly good index of interpersonal aggression. The general results were that observing the aggressive film led to more aggression against the ostensible child victim than observing the nonaggressive film, although one group of subjects (the older girls) who observed the aggressive film not only pushed the "hurt" button but also pushed the "help" button more

often than their counterparts who had observed the nonaggressive film.

The results thus far suggest, though by no means conclusively, that observing television violence may result in an immediate tendency toward an aggressive response. What might the long-term affects of watching television violence be? Obviously the best way to answer this question is to control the television viewing experience of a sample of children for an extended period of time and measure the effects. Feshbach and Singer (1971) did just this. They controlled the television viewing of 625 ethnically and socioeconomically heterogeneous 9-15 year-old boys attending seven residential schools and institutions (3 private prep schools and 4 "boys homes"). For six weeks the boys were required to watch television for at least two hours per day. Half watched regularly broadcast programs with aggressive content (e.g., "Gunsmoke"), while the other half watched nonaggressive programs (e.g., "The Dick Van Dyke Show"). Many indices of aggression were used but the most important were ratings by trained observers who were in frequent contact with the boys. Feshbach and Singer found no evidence that violence on television leads to an increase in aggressive behavior. Indeed, they found less aggression among highly aggressive lower class boys who had been exposed to programs with aggressive content. In addition, for a group of low-intelligence, hyperactive boys who had watched the violent television programs, they found more aggressive fantasy but less aggressive behavior. The authors' interpretation of this finding was that aggressive fantasy reduced aggressive drive and controlled aggressive behavior for these subjects (the catharsis effect). Feshbach and Singer conclude however, that because of imperfections in the study (especially the fact that the aggressive scores for some of the aggression-diet groups in the "boys homes" turned out to be initially higher than those given the nonaggressive diet) the most valid interpretation of the overall result is the conservative one: Namely,

for the population to which the results may be generalized, viewing of televised aggression does not lead to an increase in real-life violence.

Another, more recent experimental field study was done by Friedrich and Stein (1973). Ninety-seven boys and girls attending a summer nursery school watched three 20-minute episodes a week for four weeks of either aggressive cartoons ("Batman" and "Superman"), neutral programs, or prosocial programs "Mister Rogers Neighborhood"). The measure of interpersonal aggression, which combined physical and verbal aggressive responses, was based on observations made for two weeks before, during, and for two weeks following exposure to the television programs. The overall findings for the entire sample indicated that the effects of the three television treatments were nonsignificant. When the sample was divided into groups on the basis of initial interpersonal aggression scores, some slight but questionable support was found for the expectation that watching violent programs contributes to an increase in aggressive behavior. When Armor (1976), as reported by Kaplan and Singer (1976), reexamined the Friedrich and Stein data, however, he found that the children exposed to the prosocial programs actually exhibited the greatest post-treatment rise in aggression. Armor concluded that these data provided little evidence for the view that violent television content raises the level of violent behavior in children.

It appears that as we move from the highly controlled but artificial laboratory experiments to the study of the effects of actual television program violence on aggressive behavior in natural settings, the findings become less clear in their implications. At the present time it seems evident that although watching aggressive models may contribute to an immediate tendency toward an aggressive response, there is as yet no clear empirical support for the view that television has contributed to interpersonal aggression in children. This of course does not mean that it makes no contribution

(it is difficult to prove the null hypothesis) but it does mean that as yet there is no clear evidence that it does.

Though the impact of television violence on overt aggression remains problematic, a new line of research suggests that television violence may have indirect effects. Research by Drabman and Thomas (1974) and Thomas and Drabman (1975), in which children were left alone to witness a presumably spontaneous argument and fist fight between two younger children, revealed that prior exposure to television-like violence can decrease children's willingness to intervene. In a study by Cline, Croft, and Courrier (1973), changes in skin conductance and blood volume were measured while male subjects, ranging in age from 5 to 14 years, watched segments from a violent boxing film and from a neutral film. It was found that subjects who were heavy television watchers for the previous two years displayed fewer galvanic skin responses, and a lower percentage of change in blood volume pulse amplitude, during the violent scenes than did subjects who infrequently watched television. There are some problems in interpreting these findings: (a) because the data were correlational, the direction of causality is in question; (b) children in the heavy viewing group were from a lower socioeconomic level than those in the light viewing group; and (c) responsivity to real-life aggression was not assessed.

A recent experimental study by Thomas, Horton, Lippincott, and Drabman (1977) eliminated these errors. Eight-to ten year-old children were shown either an excerpt from a violent police drama or a segment from an exciting but nonviolent volley-ball game before watching a videotaped scene of real aggression, (a film of an argument and fight between two preschoolers). The subjects who had previously viewed the aggressive drama were found to be less aroused physiologically (as measured by GSR responsivity) by the scenes of real aggression than were subjects who had seen the control film. These findings suggest that television violence may contribute to a blunting of the child's sensitivity

to violence toward persons. On the other hand, the findings may signify nothing more than a temporary defense against excessive arousal. Further research is necessary both to substantiate these findigns and to find out what connection, if any, diminished physiological arousal may have to overt aggressive behavior.

Imitation and Prosocial Behavior

There have now been many demonstrations that exposing a child to an altruistic model can enhance the child's subsequent altruistic behavior (e.g., Bryan and Walbek, 1970; Hartup and Coates, 1967; Staub, 1971, White, 1972). Furthermore, studies have shown that a model's behavior can influence not only the amount but also the type of altruistic behavior. Harris (170, 1971), found that 10- and 11-year old children would share with the model if the model had shared with them or, would donate to a charity if the model had done that. The children were also influenced by the model in the way in which they distributed their winnings across several charities.

These laboratory modeling studies may illustrate important socialization processes that operate in the natural environment. However, as Krebs (1970) has argued, if modeling studies on altruism are to demonstrate internalized new learning, then they must demonstrate both durability over time and generality across situations. Otherwise, there is an alternative explanation in which the modeling studies are viewed as showing nothing more than demand characteristics and experimenter effects. Consider the most recent of the studies cited above (White, 1972). A miniature bowling game was used in which five-cent gift certificates could be won. The experimenter first took a few turns; upon winning, the experimenter picked up two certificates and, reaching across the subject, dropped one certificate into a charity box. Prior to doing this, the experimenter told the subject (the subjects were 9-10 year olds) that he would take a few turns in order to demonstrate the game. It seems likely that

the subject would view dropping one certificate into the charity box as part of the game, and as what was expected of him in an otherwise ambiguous situation. The fact that the subjects (all 9-10 year olds) who had observed a generous model, behaved in a gencrous manner after a five-day delay may thus only signify that they had learned well what was expected of them.

Elliot and Vasta (1970) showed generalization from the modeled sharing of candy to a very similar situation in which the children had the opportunity to share pennies. Generalization did not occur, however, to a different kind of sharing (giving up a preferred toy to a stranger). The results of three more recent studies show that altruistic modeling procedures may have very durable effects and that they may be manifested in settings that differ somewhat from the setting in which the initial modeling took place. Thus Midlarsky and Bryan (1972) found that an adult donating tokens to a charity affected children's donations to the same charity 10 days later, even when the candy donations were solicited by a different experimenter in a different room. Rushton (1975) and Rice and Grusec (1975) showed that altruistic modeling produced strong durability in 7- to 11-year old children's generous behavior over 2- and 4-month retest periods. Rushton also found that the delayed modeling effect generalized to a different experimenter and a different room. The persistence of modeling effects over periods as long as 4 months is impressive. In my judgment, however, the difference between the modeling and delayed posttest settings is superficial. And, we must remember, as noted above, that in the one study employing a very different altruistic act (Elliot and Vasta, 1970) the modeling effect did not generalize. The results of these 3 studies then, provide insufficient grounds for ruling out the "demand characteristics" explanation.

Rushton (1976) is surely right when he suggests that a solution to this perplexing problem is to show that the processes that are discovered in the

laboratory are also generalizable to the real world. And, his selection of the four studies which illustrate this strategy is identical to my own selection. However, I cannot accept Rushton's conclusion that this research shows that

> "....relatively brief exposure to highly salient models can produce durable and generalizable behavior change in observers. Furthermore, such modeling effects are not limited to the laboratory but also influence behavior in the natural environment (p. 906)."

Let us consider these four studies.

In one of the most elaborate laboratory experiments on the topic, Yarrow, Scott, and Waxler (1973) gave training in helping behavior to preschool children. The children were assigned to a control group or to play groups in which an adult caretaker, over a period of several weeks, provided either high-nurturant or low-nurturant conditions. In a series of training sessions, the nurturant or nonnurturant adult modeled sympathetic helping. For a part of the sample, a symbolic medium was used for training: the adult made sympathetic statements and engaged in helpful action in miniature doll dramas. For the rest of the sample, both symbolic and live behavioral situations in which the adult verbalized sympathy and helped another person were used. Training effects were measured two days and two weeks later. The findings were that symbolic altruism was significantly increased in doll dramas similar to those used in training in all experimental groups and was unaffected by the nurturance variations in the adult. The only children who showed the effects of training behaviorally in the real-life situations after a two-week delay (no group showed effects after two days) were those with nurturant caretakers who had modeled sympathy and helping in both the symbolic and live situations.

This is an impressive study but several problems in generalizing from it must be noted. First, the only children who showed an increase in sympathy

and helping in real life situations were those who had been exposed to modeled sympathy and helping in real-life as well as symbolic situations. Furthermore, one of the real-life modeled acts (picking up mouse food that spilled out of the cupboard) was quite similar to the real-life index of helping used in the study (picking up spools that fell off a table and toys that had fallen outside a baby's playpen). We may thus question Rushton's statement that this study showed "quite dramatic transfer effects." Second, a careful reading of the procedure reveals that the modeling procedure may be confounded with direct reinforcement and feedback to the child regarding his performance. That is, in the training sessions, when the child took his turn with the doll dramas, the adult responded to his helpful acts with warmth and approval and clearly labeled the act as one of bringing benefit to another. We cannot be certain how effective the modeling would be without this reinforcement and feedback. Finally, the one effective group noted above also happens to be the only one in which it is a nurturant adult who modeled sympathy and helping in a live situation. It is therefore impossible to tell whether the effectiveness of this group was due to modeling or to modeling in the context of a nurturant (and, as just noted, contingently reinforcing) relationship. Thus, although the findings may have significance for the larger problem of social influences on prosocial behavior, they may not be relevant, for example, to the effect of exposure to prosocial models in the mass media. The remaining three studies, which have a potential bearing on this matter, will now be discussed.

In the study cited earlier in our discussion of imitation and aggression, by Friedrich and Stein (1973), the effects of the three types of television programs on the children's prosocial behavior (cooperation, nurturance, and verbalization of feelings) in the nursery school setting were also examined. One finding was consistent with expectations: Compared with the neutral and

aggressive films, the prosocial film increased the amount of prosocial interpersonal behavior in the children from lower class families. This increase, however, was only found during the television viewing period. It was not apparent during the two-week post-viewing period. The only increase in prosocial behavior found during the post viewing period was for lower class girls who had viewed the aggressive film. Further complicating the picture were the findings for the children from middle class families. Observations during the television viewing period showed that the prosocial behavior of the middle class children who had watched the prosocial film dropped slightly, while the prosocial behavior of those who had viewed the aggressive film increased. In the post-viewing period the only effect found in the middle class children was a sharp decline in prosocial behavior for those who had observed the aggressive film. It is difficult to make sense out of the total pattern of the findings. One thing seems certain, however: they do not justify the claim made in at least two recent reviewers of this literature (Murray, 1973; Rushton, 1976) & Stein (1975) that the study supports the view that exposure to prosocial television increases prosocial behavior in children (and exposure to aggressive television increases aggressive behavior).

In a subsequent study, Friedrich and Stein (1972) showed four 20-minute prosocial "Mister Rogers Neighborhood" films over a one-week period to kindergarten children alone or in combination with one of three types of special training: (a) Verbal learning in which the themes, including significant feelings and actions, from the program were labelled in storybooks and rehearsed by the subject; (b) role-playing training in which the themes were rehearsed by the experimenter and the subject using hand puppets; and (c) both verbal learning and role playing. It was found that exposure to the prosocial film without special training produced an increase in general content knowledge about the program but did not increase the child's overt behavioral

altruistic responses. Only with one or another type of special training did exposure to the prosocial film lead to an increase in prosocial behavior. Here is another case in which the findings may be important as regards the general problem of social influences on prosocial action, but they do not support the view that prosocial modeling is enough to affect prosocial action.

In the final study of this group, Coates, Pusser, and Goodman (1976) assessed the effects of two prosocial television films on the child's social behavior in the nursery school. On each of four treatment days one group of children viewed 15 minutes of "Sesame Street" and another group viewed 15 minutes of "Mister Rogers Neighborhood". In an interesting methodological innovation, a content analysis of 10 hours of each program was previously done, coding for the frequency with which each character gave positive reinforcement and punishment to the other characters. The content analysis showed that behavior on "Sesame Street" consisted of both positive reinforcement and punishment, whereas on "Mister Rogers" it was almost totally positive. The authors selected "Sesame Street" segments to be shown to the children that stressed cognitive behaviors such as counting, reasoning and problem solving and which were relatively high in punishment (total number of positive reinforcements and punishments for the four programs were 56 and 91). The "Mister Rogers" segments chosen reflected an emphasis on social and emotional development such as cooperation, verbalizing one's feelings, and coping with frustration and were extremely high in positive reinforcement (total number of positive reinforcements and punishments were 200 and zero). Observations of the children's behavior, which were conducted before (baseline), during (treatment), and after (Posttest) one week of exposure to each of the programs consisted of the frequency of the child's acting in a positively reinforcing or punitive

manner to the other people in the nursery school.

It was found, in accord with expectations, that observing "Mister Rogers" resulted in an increase in positively reinforcing acts from baseline to treatment and, what is more important, from baseline to posttest. Contrary to expectations, however, for the subjects whose baseline positive reinforcement scores were below the median, observing this program resulted not only in an increase in positively reinforcing acts but also an increase in punitive acts. For those who watched "Sesame Street" there was no change in positive reinforcement or punishment. For those who were initially low in giving positive reinforcement, however, there was an increase in positively reinforcing acts; and for those initially low in punishment there was an increase in acting punitively. The differences between the effects of the two films are generally in keeping with the content analysis. It should be noted, however, that examination of the tabulated results reveals an unexpected, and unexplained, trend: for subjects initially above the median in giving punishment, the punishment scores dropped sharply (in both treatment and posttest) for those who had viewed "Sesame Street"; the punishment scores actually increased slightly (in the posttest) for those who had viewed "Mister Rogers".

Overall, the results of these four studies indicate that at the present time we cannot be sanguine about the possibility of increasing the prosocial behavior of young children through the use of symbolic modeling procedures unless the modeling is supplemented by other training procedures such as role playing, verbal labelling of feelings and actions, feedback regarding the effects of the child's behavior on others, and possibly direct reinforcement. It is difficult to generalize to the effects of actual television programming, however. If it is true that children spend a great deal of time at home watching programs with considerable violent content, then it may be presumptuous

of researchers, no matter how sophisticated their designs, to expect that a few hours of viewing prosocial programs like "Mister Rogers Neighborhood" can possibly counteract the effects of home television viewing. The same is true of the studies dealing with the effects of violent television. Any differential effects of a few hours of exposure to violent or nonviolent programs are likely to be overridden by the home viewing experiences of the subjects. There is an obvious dilemma here. As noted earlier, to demonstrate that the effects of exposure to aggressive or prosocial models are due to more than the demand characteristics of the experiment requires showing that the effects are enduring and manifested outside the laboratory, preferably in natural settings. But to do this becomes virtually impossible if the effects are likely to be buried, owing to the subjects' home viewing patterns (not to mention the effects of other important socialization influences such as the parent's discipline pattern). It appears, therefore, that the only possible way out may be to adopt the type of design utilized by Feshbach and Singer (1971), and to some extent by Friedrich and Stein (1973), wherein the total viewing experience of the subjects are controlled for an extended period of time in a natural setting. It may be significant that this type of research, as already noted, does not support the view that television is as important in determining how children act, as many people believe it is.

Imitation and Self Control

Bandura and others have argued that with appropriate modeling procedures children can be taught to exert control over their impulses and deviant behavioral tendencies even in the absence of external sanctions. Two general methods have been used: exposing the child to a model who is tempted to behave in a deviant manner but resists the temptation; and exposing the child to a model who behaves in a deviant manner and is punished for it.

Exposure to Self-Controlling Models

In the first published study of this type Stein (1967) assigned fourth grade boys to do a boring job (watch for a light and push a button when it goes on) while an attractive movie was being shown just outside their line of vision. The prohibition against looking at the movie was stated as follows: "The lights probably won't come on very often so you may do whatever you like as long as you stay in your chair. You must stay in your chair, though, so you'll be ready when the lights do come on." Then followed one of three conditions: exposure to an adult model doing the same task who said aloud, "I sure wish I could see the movie" and then yielded to the temptation to do so; an adult model who said the same thing but resisted temptation; and no model. After that the child was left alone and observed through a one-way mirror. The findings were that observing a model who yielded to temptation resulted in more yielding than the other two conditions. The subjects who observed a model who resisted temptation, however, showed no more resistance than the control group. This suggests that observing deviant models may serve to legitimize deviancy and undermine the subject's prior socialization against it. Observing models who resist the temptation to deviate, however, is likely to be ineffective as an agent of inhibition. Other interpretations are possible. One, that the high level of resistance shown by the no-model control group produced a "ceiling effect," is not supported by the data, as noted by Stein, since the resistance scores of the controls were actually slightly higher than those who observed the resisting model. It remains possible, however, that the control group's deviation scores were spuriously low because the deviant response had little salience for them. In any case, the study provides no evidence that observing a resisting model contributes to resistance to temptation.

Recent research raises the possibility that Stein's results may reflect the predominantly middle-class background of her subjects. Rosenkoetter (1973)

used a similar design with lower-class, mostly white, third-grade students in a Lutheran parochial school, half of whom were from broken homes. He found, as did Stein, that the effects of observing a model who yielded to temptation far exceeded the effects of observing a model who resisted temptation; the resisting model in this case, however, did have a statistically borderline effect. Fry (1975) studied 8- and 9-year-old Indian children and American middle-class children living in India, using the forbidden-toy paradigm. For the Americans, the yielding model was effective but the resisting model was not, which fits Stein's findings. With Indian children, however, the resisting and yielding models were both effective, though marginally. Fry suggests that adult models who resist temptation may be effective in cultures which stress the importance of obedience. This explanation may also apply to Rosenkoetter's findings, since lower class parents typically place great stress on obedience (e.g., Kohn, 1959), although it is not known whether this was true in Rosenkoetter's sample.

Another series of experiments, beginning with Bandura and Kupers (1964), deal with the child's adoption of a model's performance standards. The typical procedure is one in which the subject participates in a bowling game with a model. The range of scores obtained is controlled by the experimenter. At the outset. the subject and model are given access to a plentiful supply of candy or chips (exchangeable for toys later) from which they can help themselves in accord with instructions. In one experimental condition, the model sets a high standard of self-reward (e.g., on trials in which he obtained or exceeds a score of 20, he rewards himself with one or two candies and says something like "I deserve an M & M for that high score"). On trials in which the model fails to meet the standard, he takes no reward and makes some comment like "No M & M's for that" or "That does not deserve an M & M treat." After exposure to

their respective models, the subjects play the bowling game a number of times, and the performance level for which they reward themselves is recorded.

Most of these experiments have limited relevance to internal self-control because an adult (usually not the model) is present at all times. In the two studies in which the children are left to play the game alone, however, the findings were essentially the same as in the others: the children's pattern of self-reward and self-denial resembled that of the model to which they were exposed (Grusec, 1971; Liebert & Ora, 1968). That is, the children who observed a model apply a low standard rewarded themselves generously even for minimal performance. Children who observed a model apply a high, self-denying standard helped themselves to rewards sparingly and only when they achieved relatively high levels of performance.

It is difficult to interpret these findings because only two studies included control groups not exposed to any model. And whereas in both of these studies the observation of models with low standards resulted in the use of low standards by the children, such consistency was not obtained with high standards. In one study the subjects who observed models with high, self-denying standards demonstrated more self-denial than did the control group (Liebert & Ora, 1968); in the other study, they did not (Bandura & Whelan, 1966). It is difficult to know which finding to weigh more heavily. Of the two, only Liebert and Ora employed an "alone" condition on which to base the children's self-denial scores. On the other hand, the Bandura and Whelan study included six different independent tests, each with its own control group, and in all six the subjects who observed models with high, self-denying standards actually rewarded themselves more often than did the control groups (significantly so in two cases) -- a pattern much like that found in the study by Stein discussed previously. It is possible that the self-denying behavior of the control groups, which

may partly account for these findings, is due to the presence of an adult; but this adult was also present for the subjects who observed self-denying models. Furthermore, in a study by Bandura and Perloff (1967), children who were instructed to set their own performance standard and reward themselves only when they attained it, tended to set high standards to which they then adhered even when left alone. The Bandura and Whelan findings thus cannot be ignored.

Even if we conclude from these experiments that self-denial may be fostered in children by having them observe self-denying models, there is evidence that the resulting self-denial is short-lived. Bandura, Grusec, and Menlove (1967b) reported that high, self-denying standards were readily abandoned in favor of more lenient standards used by a peer model. This finding takes on added significance in light of the evidence that children will ordinarily emulate an adult rather than a peer who uses the same standard (Bandura & Kupers, 1964). All in all, the evidence is not compelling that observing models who set high standards and deny themselves rewards when they fail to attain them results in self-denying behavior by the child. Models exhibiting lenient standards, however, do appear to be quite effective.

Still another aspect of inhibition and self-control that has been studied experimentally in relation to imitative modeling is the ability of the child to defer immediate gratification in favor of more valued long-range satisfactions. In a study by Bandura and Mischel (1965) fourth- and fifth-grade children were administered a series of 14 paired choices. Each pair consisted of a less valued item that could be obtained immediately or a more valued one that would not be available until 1 to 4 weeks later. The subjects were asked to choose one item from each pair and advised to choose carefully because they would actually receive 1 of the 14 items they selected -- either on the same day or after the

the delay period indicated for their preference. Several weeks later the subjects were exposed to an adult model who made choices in a similar situation though with items more appropriate for adults. With high-delay children, the models consistently selected the immediately available items and in several instances commented briefly according to a prearranged script on the benefits of immediate self-reward (e.g., "Chess figures are chess figures. I can get much use out of the plastic ones right away."). In addition, after the fourth choice, the model casually summarized his immediate-gratification philosophy of life as follows: "You probably have noticed that I am a person who likes things now. One can spend so much time in life waiting that one never gets around to really living. I find that it is better to make the most of each moment or life will pass you by." With low-delay children the model consistently selected the more valued, delayed items. The model likewise commented periodically on the virtues of self-imposed delay (e.g., "The wooden chess figures are of much better quality, more attractive, and will last longer. I'll wait two weeks for the better ones.") and expounded his postponement-of-gratification philosophy of life in the following manner: "You have probably noticed that I am a person who is willing to forego having fewer or less valuable things now, for the sake of more and bigger benefits later. I usually find that life is more gratifying when I take that carefully into account." Immediately after observing the model the children were individually administered another set of 14 choices which differed somewhat from the original set. To test for stability of the altered delay pattern, the children were also readministered the original set of 14 choices between 4 and 5 weeks later.

Substantial modifications were obtained in both the immediate postexposure test and the later test. The effects of the model were most pronounced for the children who intially showed a preference for delayed rewards. ~~These children showed a preference for delayed rewards.~~ These children showed a marked shift

toward a preference for immediate and less valued rewards after observing a model who favored immediate gratification. For the subjects who initially exhibited a disposition toward immediate rewards -- a more important group for our purposes since they shifted toward increased self-control -- the findings are less clear-cut. On the one hand, these subjects did show an increased willingness to wait for more highly valued rewards after observing a model who exhibited such a preference, both immediately after exposure to the model and in the later test, whereas a control group of comparable subjects who did not observe a model shifted significantly only in the postexposure test. On the other hand, when a direct comparison was made, the experimental and control groups did not differ significantly in either the immediate or the later test, a finding which resembles those obtained in the modeling studies already discussed.

An interesting aspect of this study which may complicate any interpretation of the findings is the fact that the model gave a convincing philosophy and rationale for his act, which means that the subjects may have shifted their preference because they were persuaded by these arguments. Indeed, a third experimental group which did not see the model but heard his recorded comments shifted just as much as the group that did see the model. The finding is no less interesting if the model's arguments are the important factor, especially in view of the long-range effects demonstrated, but the usual imitation or even observation learning concepts may not apply, since the subjects may actually be experiencing a change of mind. Still another possibility is that the subjects perceived the model's behavior as defining the socially acceptable norm in such choice-making situations, and then merely shifted their preference accordingly. This "demand characteristic" explanation is plausible particularly since the experimenter was present while the subjects made their

choices (although the model had left). With these conceptual and methodological qualifications, we would tentatively conclude that observing models can increase the child's willingness to forgo immediate gratification when this is clearly in the interest of still greater gratification in the future.

Exposure to Punished Deviant Models

A number of experiments have been done on the effects of having children observe models -- mostly peers -- who are punished for behaving in a manner forbidden by the experimenter. The procedure used by Walters and Parke (1964) is typical. The subjects, 6-year-old boys, were first shown some toys and forbidden by the experimenter from touching them with the statement, "Now, these toys have been arranged for someone else, so you'd better not touch them." They then observed a 3-minute color film sequence depicting an adult female, presumably a mother, indicate to a small boy that he should not play with toys that had been placed on a nearby table. The "mother" then sat the child down beside the table, handed him an open book, and left the room. After her departure, the child put the book aside and played for approximately 2 minutes with the prohibited toys. For the model-rewarded condition, the last part of the film showed the "mother" return to the child, sit by him, hand him toys, and play with him in an affectionate manner. In contrast, under the model-punishment condition the film ending showed the "mother," on ther return from the other room, snatch from the child the toy he was then playing with, shake him, and sit him down once more in the chair with the book. For the no-consequence condition the film ceased after the model had played with the toys for 2 minutes, that is, the "mother" did not reenter the room. After the film, the experimenter made an excuse to leave the room, promised to return soon and play a game with the child, and gave him the dull task of "reading a dictionary" while she was gone. The experimenter remained outside the room

for a 15-minute period during which an observer recorded the latency of the first deviant response made by each child, the number of times the toy was touched or played with, and the duration of deviation. Children in a control group saw no film but were otherwise treated in the same way as children under the three film conditions.

The findings were as follows: (1) the subjects who observed the model punished deviated less quickly, less often, and for a shorter period of time than subjects under the model-rewarded and no-consequence conditions; (2) they actually deviated slightly (though not significantly) more than the control group who saw no film; and (3) the no-consequence condition resulted in as much deviation as the model-rewarded condition. These results are typical, although there is an exception (Walters, Leat, & Mezei, 1963). How one interprets them depends on whether the no-model or the no-consequences condition is used as the control group. The issues are the same as those discussed earlier in connection with imitation and aggression. Here, too, and for similar reasons, I believe the no-model group is the appropriate, though by no means the ideal control group. With this in mind, I would suggest the following interpretation of what happens in the model-punished condition. First, the subjects were initially motivated to play with the attractive toys, but deterred by the experimenter's prohibition perhaps because of the general tendency to obey adult authority in strange unstructured situations. Second, watching a peer model play had an initially disinhibiting effect. Third, this disinhibition was sustained in the absence of punishment, that is, in the model-rewarded and no-consequence conditions. (The analysis thus far may also encompass the Stein findings mentioned earlier since the yielding-model condition there was essentially the same as the no-consequence condition here.) Fourth, the punishment to the model was potent enough to counteract the disinhibition and re-establish the baseline level of inhibition

created by the prohibition, but not enough to increase the inhibition beyond that level. Exposure to a deviant model who is punished thus appears to have an inhibiting effect on the response tendency initially aroused by the model's deviant act, but not on that existing before exposure. Stated differently, the effectiveness of a prohibition may be reduced by exposing the child to a model performing the prohibited act; the reduction is temporary if the model is subsequently punished.

In a recent study, Zimmerman and Kinsler (1977) used essentially the Walters and Parke procedure with certain modifications. The modeling film was different and there were three variants of the initial verbal prohibition from the experimenter to the subject: Strong prohibition (In this room there are some toys. They belong to another child. You are not to touch or play with them); mild prohibition (....I would prefer, etc....); no prohibition. This was the first study of this type to include a no-prohibition condition, thus affording a relatively pure test of the effectiveness of observing a punished model. And, indeed, it was found in the no-prohibition condition that the children who had observed the punished model spent less time playing with the toys than subjects in the no-model condition. Unfortunately, there is a detail in the modeling film that may nullify the potential importance of these results. In the film the adult tells the child model that the adult has to leave the room to get some things she forgot. She also says that she will close the door when she leaves and that she will knock before re-entering. On hearing the knock, the child model tries hurriedly to replace the toys he has been playing with but there is not enough time. The adult chastizes and spanks him for playing with the forbidden toys, and he cries. The problem is that the child's task, the physical layout of the room, and, most importantly, the adult's promise to knock, are virtually identical to the situation in

which the subject is placed. It therefore seems likely that the message communicated to the subject by the film is that he had better not play with the toys because despite the experimenter's promise to knock, he will get caught and will be painfully punished. What his refraining from playing with the toys may indicate, then, is not internal self control but a response to the demand characteristics of the experiment, including possibly a fear of external punishment.

Overall, the most reasonable conclusion to draw from the research on modeling and self control is that exposure to deviant, unpunished models has a disinhibiting effect that may reflect a temporary undermining of the observer's prior socialization in resistance to temptation and self-denial. The research is less clear, however, as to the effectiveness of exposure to models who resist temptation, or who deviate and are punished. The research also suggests that the failure to imitate a model's self-denying behaviors is not due to deficiencies in cognitive capacity, since the children were able to imitate the models, sometimes in remarkable detail, when self-denial was not involved. Perhaps the observation of models is not enough to arouse sufficiently powerful motives to overcome the child's natural tendency towards self-gratification. This may be due to the artificiality of the typical laboratory experiment and the use of models who are strangers to the child.

Another interpretation, already alluded to, is that rewarding and punishing a model serves mainly to communicate a message from the experimenter to the subject, telling him what he is expected to do in the strange experimental situation. The model serves merely as the medium of this message. In other words, the subject may not experience vicarious reward and punishment, as is often assumed, but he may simply infer what is expected of him, and perhaps

what will happen to him if he indulges his desires and behaves otherwise. To demonstrate more than this, that is, to demonstrate that the subjects' responses are not simply due to demand characteristics, may require evidence that the effects are durable and manifested in other, quite different situations. But then we are faced with the same dilemma posed earlier in connection with aggression and prosocial behavior, namely, any effects of these brief manipulations are apt to be overridden by the subject's everyday experiences.

As a final critical point, some of the experimental procedures appear to lack any ecological validity. For example, children may imitate a model's standards of self reinforcement under the experimental conditions described, but how often do real-life models reward themselves so ostentatiously and with such explicit verbal justification?

The Clinical use of Modeling

In his book Principles of Behavior Modification Bandura (1969b) theorized that if a person has a deep-seated fear (e.g., a fear of initiating social interaction or a fear of dogs) it may be possible to reduce or eliminate the fear by repeatedly exposing the person to a model who approaches the feared object without the occurrence of aversive consequences. According to Bandura, the most effective procedure is to expose the person to a graduated sequence of the aversive stimuli that progressively approximate the most feared event. (If the most feared event is presented too soon, the person might turn away and necessary observation learning from the model might not take place.) It is also advisable, according to Bandura, to expose the person to diverse models who demonstrate fearless behavior to different forms of the feared object without adverse consequences. Much of the pertinent research has been

done with adults but several interesting studies have been reported in which children served as subjects.

In a study by Bandura, Grusec, and Menlove (1967b), preschool children who displayed fearful and avoidant behavior toward dogs were assigned to one of four treatment conditions: (a) one group participated in a series of brief modeling sessions (eight 10-minute sessions on four consecutive days) in which they observed, in a party context (including cookies, prizes, balloons, brightly colored hats, etc.), a fearless 4-year old child exhibit progressively stronger approach responses toward a dog. The fear-arousing properties of the model's performance were gradually increased from session to session by decreasing the physical restraints on the dog, increasing the directness and frequency of the model's approach responses, and increasing the duration of interactions; (b) A second group observed the same graduated modeling stimuli, but in a neutral context; (c) a third group merely observed the dog in the party context, with the model absent; (d) a fourth group participated in the party activities without any exposure to either the dog or the modeled displays. Following each treatment, the subject was given an avoidance test in which he was successively asked to approach and pet the same dog, release him from the playpen, remove his leash, feed him biscuits, spend a fixed amount of time with him, climb into the pen with him and, finally, lock the gate and remain in the pen with the dog. The test was also carried out with a second dog, and repeated one month later. The results were that the two groups of children who had observed the model interact nonanxiously with the dog displayed a stable and generalized reduction in avoidance behavior, and differed significantly in this respect from the children in the other two conditions. The party context did not enhance the effects produced through modeling. Particularly interesting is this finding: In the one-month follow-up, not one control subject was able

to remain alone in the playpen with each of the dogs, (the most stringent test in the study), whereas 33% of the children in the modeling conditions were able to do so.

In a subsequent study by Bandura and Menlove (1968), one group of preschool children who were fearful of dogs observed a series of films (eight 3-minute films, two per day on four alternate days) in which a 5-year old boy displayed the same progressively more intimate interactions with a dog that the model in the previous study did. A second group was exposed to a similar set of graded films depicting a variety of models interacting non-anxiously with numerous dogs varying in size and fearsomeness. A control group was shown movies containing no animals. The assessment procedures were the same as those used in the previous study. The results were that both the single-modeling and multiple-modeling treatments produced significant reductions in children's avoidance behavior, but only the multiple modeling treatment weakened the children's fears sufficiently to enable them to remain alone in the playpen with the dog. The authors also note that the single filmed model in this study was not as effective as the single live model in the previous study, but the multiple filmed model was as effective. And, the multiple-model group actually showed less fear of the dogs a month later then they did on the day following completion of the experimental treatments.

Symbolic modeling has also been used as a means of influencing the social behavior of preschool children with low levels of social responsiveness. In these studies children are selected as having low levels of interaction on the basis of teacher ratings plus behavioral observations. The children are then shown films or videotapes depicting children interacting with each other, accompanied by a narrative sound track consisting of an adult voice describing

ongoing social interactions and their outcomes. O'Connor observed that immediately following exposure to such a film children showed significantly higher levels of social interaction than children in a no-treatment condition (1969), and he found a similar effect which was maintained at assessments occurring 3 weeks and 6 weeks following exposure to the modeling condition. Keller and Carlson (1974) found an increase in social interactions (including both the giving and receiving of social reinforcements) immediately following the modeling treatment, but the effect was not maintained relative to a no-modeling condition at a 3-week follow-up assessment.

In the most recent and perhaps most interesting study of this type Jakibchuk and Smeriglio (1976), socially isolated children were randomly assigned to one of four conditions: One group (self-speech group) watched four different 5-minute videotaped sequences (one per day on four consecutive days) each of which portrayed a child model displaying a progressive change from solitary play to active participation with peers. The accompanying sound track featured self-guiding comments in first-person form relating to the model's activities (e.g., "My name is Danny and I go to nursery school. I'm sitting here all by myself looking at a book....Those children over there are playing together....I would like to play with them. But I'm afraid. I don't know what to do or say....This is hard, but I'll try....I'm close to them....I did it. Good for me....I like playing with Johnny and Bobby. I'm really glad I decided to play with them. I'm having lots of fun.") A second group (narrative group) watched the same videotapes accompanied by sound tracks containing the same information but voiced by a child in third-person form. A nature-film control and a no-treatment control group were also employed. Pretreatment, posttreatment, and follow-up observations were made with three different measures of social behavior: positive social behavior directed toward

peers, positive social behavior received from peers, and social interaction. The findings were that on all three measures the children in the self-speech condition improved from pretreatment to posttreatment (the day after the last videotape presentation), and from pretreatment to follow-up (three weeks after the posttreatment assessment). The narrative group did almost as well, showing improvement on two of the three measures. Perhaps most suggestive is the finding that at follow-up the self-speech group was the only experimental group that did not differ significantly from children who had never been socially isolated. The narrative group, though improved relative to their pretreatment behavior, remained significantly less socially active than the nonisolates. As noted by the authors, the long term effects of the modeling procedures in these social isolate studies are very likely due to the fact that the subjects continually receive reinforcement from their peers for acting in the same way that the model did.

The results of these studies are impressive and the question may be asked, why are modeling procedures so successful in reducing long-standing phobias, yet apparently relatively ineffective in enhancing prosocial and self-controlling behaviors. For one thing, the procedures are different. In the clinical studies the subjects are preselected; they all have a particular fear. The model is a peer who initially keeps distance from the feared object, and is thus someone with whom the subject can identify. It is therefore possible in these studies that the subject to some extent shares the feelings that the model ostensibly has in the situation, and that the effectiveness of these procedures may therefore depend in part on the vicarious arousal of affect. This, in conjunction with the realization that the anticipated aversive consequences do not occur, may contribute to diminishing the subject's fear. In the prosocial and self-control studies there is little if any reason to expect vicarious affect

arousal, only the awareness of what actions are to be expected, permitted, or punished. In addition, the modeled actions in the clinical studies are not as likely to be counteracted by the subject's everyday experiences as the modeled actions in the prosocial and self-control studies. Those who fear dogs, for example, may simply keep away from them in real life; and if they should imitate the model's actions the chances are that they will not be harmed. And, in the social isolate studies, as already noted, imitating the model may actually lead to responses from peers which are rewarding and thus help sustain the effects of the modeling procedure.

Conclusions

I will now attempt to pull together what we can say with confidence about identification and imitation in children, as well as to indicate some of the important questions about which we still know very little.

1. As regards identification, the various theories, which pertain mainly to underlying motives, are highly developed and sophisticated, but there is very little pertinent research. The only thing we can say with confidence is that there is no support for the psychoanalytic assumption that identification is an all-encompassing unitary process. There is evidence to suggest, but only to suggest , that culturally approved sex-linked preferences and behaviors and certain aspects of morality that are reflected overtly in the parent's words and deeds may be acquired in part through identification.

2. Not surprisingly, there is good evidence that the child's general cognitive level has an impact on what he can learn by observing models. For example, young children can abstract the simple grammatical rules and conceptual strategies that underlie a model's actions and utilize these rules later when the task and setting are slightly different. They cannot, however, grasp

rules that are beyond their cognitive level, nor does it appear that they can transfer even simple rules to tasks and settings that differ sharply from those in the modeling situation.

3. Since cognition influences and limits imitation, the possibility exists that a convincing developmental analysis of imitation, paralleling the stages in cognitive development, may someday be made. To date, the closest approach to a stage analysis comes from Piaget's work with infants, which suggests that by as early as one month of age the infant will imitate, though only if another person first mimics a certain action of his. By 4 or 5 months he can imitate acts that are unrelated to his own momentary state, but this is limited to acts that are already part of his repertoire and that provide him with a visual impression matching the model's acts; furthermore, external reinforcement is required to connect the act to the model's behavior. By about one year, these limitations are overcome and the child spontaneously imitates novel acts, though with considerable trial and error. By about 16 months, the infant appears to be capable of spontaneous imitation of novel acts, with little trial and error. More importantly, he can also imitate a model after a long delay, in the model's absence, which indicates that internally represented images have begun to replace overt imitation and to serve as a guide for later enactment of the model's behavior.

4. The fact that children do abstract rules, however simple, from discrete modeled acts indicates that they are clearly not passive observers but active cognitive processors of the model's words and actions. There is also suggestive evidence that children may actually be provoked to re-think their own views, and sometimes to change their minds, as the result of being repeatedly exposed to an adult model who expresses a contrary view.

5. The research clearly shows that young children may acquire, from even a very brief period of observation, certain motoric and verbal behaviors that appear to be associated with aggression in real-life situations. That is, the children show these behaviors right after observing the model. Furthermore, if the model is rewarded for his aggressive actions, the child is more likely to imitate these actions. If the model is punished for aggression, however, the child's resulting behavior is not measureably different from that of a child who observed no model. I underscored "associated with aggression" because none of this research dealt with actual interpersonal aggression by the subjects.

As we move closer to testing the impact of media violence on interpersonal aggression, the results become less clear. There is evidence, primarily from only one study however, that exposure to violent segments of an actual television program does produce an immediate increase in interpersonal aggression in children.

6. As regards the more significant question of the long-term effects of television violence, the results are more equivocal. The best way to examine such effects is to control the television viewing experience of a sample of children for an extended period of time. The st dies that come closest to this ideal provide no evidence that television violence contributes to overt interpersonal aggression in children. And, though a recent line of research suggests that watching violent television programs may diminish one's emotional response to real-life aggression, further work is needed to substantiate the finding as well as to confirm the investigators' view that it reflects a blunting of the subject's sensitivity to violence that may increase his participation in it.

7. The research clearly indicates that exposing a child to a model who shares, or helps another person will increase the likelihood that the child

will share or help if given the opportunity shortly thereafter. There is also evidence that in some cases the effect may last as long as several months. These long-term effects, however, seem to be confined to the performance of prosocial acts that are similar to those displayed by the model, and in similar settings, which suggests that they may reflect nothing more than the demand characteristics of the experiments.

8. When we examine the studies dealing with the effects of watching actual segments of prosocial television programs, we find no support for the contention that prosocial behavior may be enhanced by watching television programs with prosocial content. This conclusion, which may be as difficult for some to believe as that pertaining to violent programs, may reflect the fact that any effects that brief exposures to prosocial programs might have are likely to be overridden by the subjects' everyday television viewing experiences, as well as by their parents' childrearing practices and other socialization influences.

9. The research also indicates rather clearly that exposure to models who yield to the temptation to perform a prohibited act, without being punished, has a disinhibiting effect on children, which may reflect a temporary undermining of their prior socialization in self control. The research is less clear, however, as to the effects of being exposed to models who resist temptation or who yield to it and are punished. It is entirely possible that this rather vast body of research, all of which has been confined to the labortory, demonstrates nothing more than the demand characteristics of the experiments or, in some cases, experimental effects which have little to do with real life.

10. The use of modeling procedures has been found to be an effective means of overcoming children's fear of dogs as well as the fear of making

social contacts with peers. These studies demonstrate the potential power of modeling procedures, although to achieve this power may require pre-selecting the subjects, carefully designing the modeling procedures so as to activate vicarious affective processes in them, and assuring that their everyday experience outside the laboratory will reinforce, or at least not counteract, the effects of modeling.

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